

Literary Reading - Heat

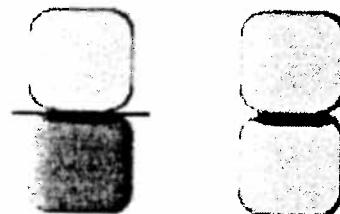
Heat can move from one object to another in three different ways: conduction, convection and radiation.

Conduction is the heat transfer through a substance or from a substance to another by direct contact. Everything is made up of small particles. When the particles are moving faster, there is more energy and the temperature is higher. As fast-moving particles touch slow-moving particles, the energy is transferred. This causes slower particles to speed up and the faster particles to slow down. You can demonstrate this by rubbing your hands together very fast for 30 seconds. Now touch them to your ears. Can you feel the heat transfer from your hands to your ears? As your ears warm, your hands will cool until the particles in each are moving at the same speed.



Another example of conduction is a pan on the stove. The stove is heated by gas or electricity. Then the pan gets hot. *Substances that transfer heat better than others are conductors.* Can you think of other examples of conductors? Insulators are substances that do not conduct heat easily. Glass, wood, plastic and rubber are all insulators. Pans have plastic or wood handles to keep the pan from conducting heat to your hand and burning it. Can you think of other examples of insulators?

Convection is the heat transfer in liquids and gases as particles circulate in currents. This transfer of energy causes warm substances to rise and cool ones to sink. In heat transfer by convection, the particles in a liquid or gas speed up as they are heated. This causes the particles to move apart and the substance becomes lighter. As the heated substance rises, the cooler, heavier substance moves down. These currents exchange heat through this movement. You can observe convection in a simple experiment. Get two baby food jars. Fill one with hot water and a drop of red food color. Fill the other with cold water and a drop of blue food coloring. Place a card over the mouth of the cold water jar and turn it upside down on top of the warm water. Carefully pull out the card. You should see warm, red water rising and cold water sinking.



Radiation is the transfer of heat through space in the form of waves. The heat we receive from the Sun is radiant heat. Radiant heat travels as waves through space. Heat waves hit Earth and cause warming. Our atmosphere traps the warmth. Your house gets warm when the Sun's waves or rays travel through a window and are trapped in your house, warming it. Heat waves are invisible. All warm objects radiate or give off heat waves. Some other examples of radiation are the heat surrounding a fire, the heat given off by an electric heater, and the heat near a hot oven.

Name _____ Date _____ Bell _____

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What is _____
HEAT TRANSFER: _____

Conduction

Convection

Radiation

Definition & examples ↓